Northwest Regional Office
CLEAN WATER PROGRAM

NPDES PERMIT FACT SHEET INDIVIDUAL SEWAGE

Application Type	**Renewal**	Application No.	**PA0222887**
Facility Type	**Non-Municipal**	APS ID	**1114650**
Major / Minor	**Minor**	Authorization ID	**1486725**

Applicant and Facility Information

Applicant Name	**Cathedral Pines Inc. DBA Gateway Lodge**	Facility Name	**Gateway Lodge Restaurant**
Applicant Address	PO Box 125 14870 Route 36	Facility Address	14870 Route 36
	Cooksburg, PA 16217-0125		Cooksburg, PA 16217
Applicant Contact	Steve Hoover	Facility Contact	
Applicant Contact Phone	(814) 744-8017	Facility Phone	
Applicant Contact Email	steve@gatewaylodge.com		
Client ID	255031	Site ID	257108
Ch 94 Load Status	Not Overloaded	Municipality	Barnett Township
Connection Status	No Limitations	County	Jefferson
Date Application Received	May 9, 2024	EPA Waived?	Yes
Date Application Accepted	July 3, 2024	If No, Reason	
Purpose of Application	Renewal of a NPDES Permit for an Existing Discharge of 0.006 MGD		

Summary of Review

This is a renewal Sewage Individual NPDES Permit for an Existing Discharge from a non-municipal minor sewage facility. The Gateway Lodge is a 25-room lodge with restaurant near Cooksburg off of route 36 just south of Cook Forest State Park. Treatment facilities permitted under WQM Permit # 3399403 T-1 consist of: bar screen, equalization tank, aeration basin, clarifier, sludge holding tank, chlorine contact tank, dosing tank, and (2) subsurface sand filters. This treatment plant is designed for a capacity of 0.006 MGD, with most recent flows averaging 0.0014 MGD.

An inspection of the facility was conducted on October 24, 2022. The inspection report did not cite any violations

Act 14 – Proof of Notification was submitted and received.

This facility is currently using eDMR system.

SPECTIAL CONDITIONS: NONE

The EPA waiver is in effect.

There are eight (8) open violations in WMS for the subject Client ID (255031) as of July 12, 2024 associated with Safe Drinking Water Section.

Public Participation

DEP will publish notice of the receipt of the NPDES permit application and a tentative decision to issue the individual NPDES permit in the *Pennsylvania Bulletin* in accordance with 25 Pa. Code § 92a.82. Upon publication in the *Pennsylvania Bulletin*, DEP will accept written comments from interested persons for a 30-day period (which may be extended for one additional 15-day period at DEP's discretion), which will be considered in making a final decision on the application. Any person may request or petition for a public hearing with respect to the application. A public hearing may be held if DEP determines that there is significant public interest in holding a hearing. If a hearing is held, notice of the hearing will be published in the *Pennsylvania Bulletin* at least 30 days prior to the hearing and in at least one newspaper of general circulation within the geographical area of the discharge.

Approve	Deny	Signatures	Date
X		Aeshah Shameseldin Aeshah Shameseldin / Civil Engineer	July 12, 2024
		Vacant / Environmental Engineer Manager	Okay to Draft JCD 7/22/2024

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	.006
Latitude	41º 19' 22.8"	Longitude	-79º 11' 57.89"
Quad Name	Cooksburg	Quad Code	41079C2
Wastewater Description:	Sewage Effluent		
Receiving Waters	Unnamed tributary to Clarion River (CWF)	Stream Code	---
NHD Com ID	102668335	RMI	0.17
Drainage Area (mi^2)	0 (dry), 793 (perennial)	Yield (cfs/mi^2)	0.001 (dry), 0.211 (perennial)
Q_{7-10} Flow (cfs)	0 (dry), 167.3 (perennial)	Q_{7-10} Basis	Stream Gage # 03029500, Clarion River at Cooksburg, PA
Elevation (ft)	1345	Slope (ft/ft)	---
Watershed No.	17-B	Chapter 93 Class.	CWF
Existing Use	---	Existing Use Qualifier	---
Exceptions to Use	---	Exceptions to Criteria	---
Assessment Status	Attaining Use(s)		
Cause(s) of Impairment	---		
Source(s) of Impairment	---		
TMDL Status	Final	Name	Lower Clarion River Wastershed

Background/Ambient Data		Data Source
pH (SU)	7.0	Default
Temperature (°F)	68	Default
Hardness (mg/L)	100	Default
Other: NH_3-N	0.1	Default

Nearest Downstream Public Water Supply Intake		Pennsylvania American Water Company - Clarion	
PWS Waters	Clarion River	Flow at Intake (cfs)	90.7
PWS RMI	33.3	Distance from Outfall (mi)	

Changes Since Last Permit Issuance: None.

Other Comments: Dry Stream Determination was conducted by Bob Sterba (dated 3/25/1999) that discharge is to intermittent stream for approx. 1000 feet prior to entering the Clarion River. No anticipated impacts to groundwater was expected at time of survey.

Treatment Facility Summary

Treatment Facility Name: Gateway Lodge

WQM Permit No.	Issuance Date
3399403 T-1	3/01/2009

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary	Extended Aeration	Hypochlorite	0.006

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.006	6.6	Not Overloaded	None	Other WWTP

Changes Since Last Permit Issuance: ---

Other Comments: The chlorine contact tank and dosing tank were pumped down and cleaned in June 2022. 0.14 tons of dry sludge were removed in 2022. Sludge removal typically occurs every 1-2 years.

Compliance History

DMR Data for Outfall 001 (from June 1, 2023 to May 31, 2024)

Parameter	MAY-24	APR-24	MAR-24	FEB-24	JAN-24	DEC-23	NOV-23	OCT-23	SEP-23	AUG-23	JUL-23	JUN-23
Flow (MGD) Average Monthly	0.0007	0.0005	0.0005	0.0009	0.0008	0.008	0.001	0.001	0.001	0.0009	0.0009	0.0009
Flow (MGD) Daily Maximum	0.0007	0.0005	0.0005	0.0009	0.0008	0.008	0.001	0.001	0.001	0.0009	0.0009	0.0009
pH (S.U.) Daily Minimum	7.5	7.4	7.6	7.9	7.8	7.7	7.9	7.4	7.2	7.2	7.2	7.3
pH (S.U.) Daily Maximum	8.1	8.2	8.3	8.3	8.2	8.2	8.3	8.2	8.1	7.8	8.0	8.1
DO (mg/L) Daily Minimum	5.6	6.3	13.9	13.9	14.3	13.9	11.21	12.0	11.7	10.4	11.3	9.7
TRC (mg/L) Average Monthly	0.15	0.08	0.10	0.13	0.11	0.06	0.06	0.08	0.10	0.11	0.18	0.14
TRC (mg/L) Instantaneous Maximum	0.55	0.29	0.67	0.57	0.37	0.16	0.22	0.28	0.37	0.40	0.73	0.55
CBOD5 (mg/L) Average Monthly	6.6	< 3.0	< 3.0	< 3.0	< 3.0	< 3.00	2.04	2.61	< 2.14	< 2.14	< 2.14	< 2.00
TSS (mg/L) Average Monthly	3.0	< 3.0	< 3.0	< 3.0	< 3.0	5.00	< 2.50	6.00	10.0	3.00	< 2.50	< 2.50
Fecal Coliform (No./100 ml) Geometric Mean	2	2	< 1.0	9.0	28	17.5	< 1.00	31.7	1.0	54.8	133.3	42
Fecal Coliform (No./100 ml) Instantaneous Maximum	2	2	< 1.0	9.0	28	17.5	< 1.00	31.7	1.0	54.8	133.3	42
Total Nitrogen (mg/L) Annual Average						< 0.50						
Ammonia (mg/L) Average Monthly	< 0.1	< 0.1	< 0.10	0.10	0.12	< 0.10	< 0.10	0.1346	< 0.10	< 0.10	< 0.10	< 0.10
Total Phosphorus (mg/L) Annual Average						3.84						

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** .006
Latitude 41º 19' 22.80" **Longitude** -79º 11' 57.89"
Wastewater Description: Sewage Effluent

Technology-Based Limitations

The following technology-based limitations apply, subject to water quality analysis and BPJ where applicable:

Pollutant	Limit (mg/l)	SBC	Federal Regulation	State Regulation
$CBOD_5$	25	Average Monthly	133.102(a)(4)(i)	92a.47(a)(1)
	40	Average Weekly	133.102(a)(4)(ii)	92a.47(a)(2)
Total Suspended Solids	30	Average Monthly	133.102(b)(1)	92a.47(a)(1)
	45	Average Weekly	133.102(b)(2)	92a.47(a)(2)
pH	6.0 – 9.0 S.U.	Min – Max	133.102(c)	95.2(1)
Fecal Coliform (5/1 – 9/30)	200 / 100 ml	Geo Mean	-	92a.47(a)(4)
Fecal Coliform (5/1 – 9/30)	1,000 / 100 ml	IMAX	-	92a.47(a)(4)
Fecal Coliform (10/1 – 4/30)	2,000 / 100 ml	Geo Mean	-	92a.47(a)(5)
Fecal Coliform (10/1 – 4/30)	10,000 / 100 ml	IMAX	-	92a.47(a)(5)
Total Residual Chlorine	0.5	Average Monthly	-	92a.48(b)(2)
E. Coli	Report (No./100 ml)	IMAX	-	§ 92a.61

Comments: Monitoring for E. Coli is placed in the permit in accordance with the Department's SOP entitled "Establishing Effluent Limitations for Individual Sewage Permits."

Water Quality-Based Limitations

CBOD5, Ammonia, and DO are evaluated using WQM 7.0 (See Attachment 1 and 2). TRC is evaluated using the department's TRC evaluation spreadsheet (See Attachment 3).

The following limitations were determined through water quality modeling:

Parameter	Limit (mg/l)	SBC	Model
Dissolved Oxygen	4.0	Daily Min.	WQM 7.0
CBOD5	10	Avg. Monthly	WQM 7.0
Ammonia Nitrogen	10	Average Monthly	WQM 7.0
	20	IMAX	
TRC	0.5	Average Monthly	TRC evaluation spreadsheet

Comments: A two-step model was used. The first step was for a dry stream evaluation. The DO simulation end-of-reach data was then used to evaluate the second step perennial stream reach. The second step evaluated perennial stream conditions (See Attachment 1 and Attachment 2).

The current average monthly Ammonia Nitrogen limit is 3.0 mg/L. WQM modeling didn't calculate more stringent average monthly Ammonia Nitrogen limit at perennial conditions. A review of the Discharge Monitoring Reports for the past three years indicates general compliance for Ammonia Nitrogen effluent results less than 3.0 mg/l 100% of the time. As a result, current monitoring requirements will be retained.

The TRC evaluation spreadsheet didn't calculate more stringent average monthly TRC limit at perennial conditions using the plant design flow, the technology-based limitations established in previous permits are attainable and will be retained.

Best Professional Judgment (BPJ) Limitations

Comments: The current limits for $CBOD_5$, TSS, and NH_3-N were established using “Minimum Treatment” requirements from a previous version of the Department’s “Implementation Guidance for Evaluating Wastewater Discharges to Drainage Ditches and Swales”. These limits are attainable and will be retained in this renewal.

Anti-Backsliding

No backsliding of limits is being proposed.

Proposed Effluent Limitations and Monitoring Requirements

The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality and BPJ. Instantaneous Maximum (IMAX) limits are determined using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants). Sample frequencies and types are derived from the "NPDES Permit Writer's Manual" (386-0400-001), SOPs and/or BPJ.

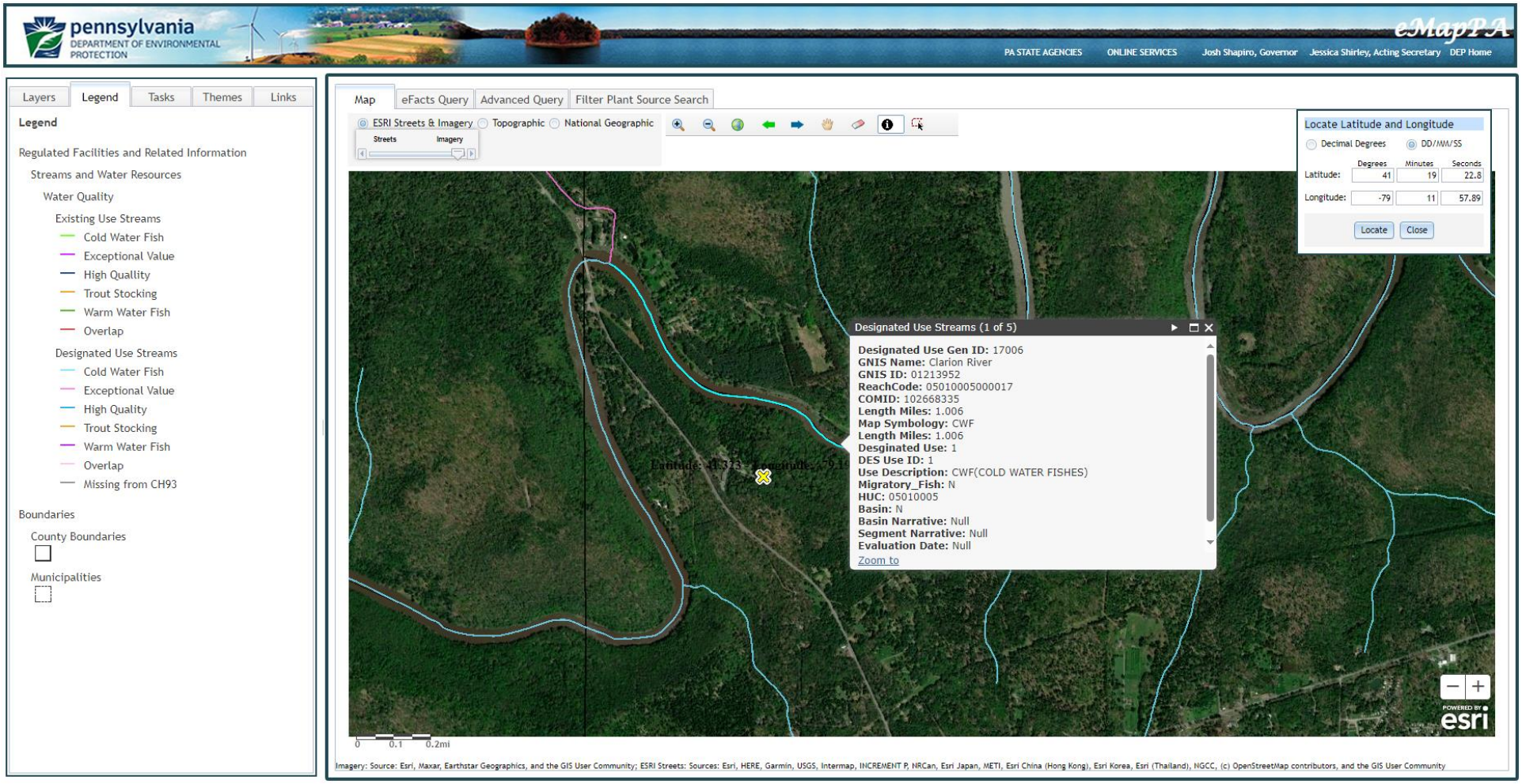
Outfall 001, Effective Period: Permit Effective Date through Permit Expiration Date.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Maximum	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	1/week	Measured
pH (S.U.)	XXX	XXX	6.0 Daily Min	XXX	9.0 Daily Max	XXX	1/day	Grab
DO	XXX	XXX	4.0 Daily Min	XXX	XXX	XXX	1/day	Grab
TRC	XXX	XXX	XXX	0.5	XXX	1.2	1/day	Grab
CBOD5	XXX	XXX	XXX	10.0	XXX	20	1/month	Grab
TSS	XXX	XXX	XXX	10.0	XXX	20	1/month	Grab
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	1/month	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	1/month	Grab
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	XXX	Report	1/year	Grab
Total Nitrogen	XXX	XXX	XXX	Report Annl Avg	XXX	XXX	1/year	Grab
Ammonia	XXX	XXX	XXX	3.0	XXX	6.0	1/month	Grab
Total Phosphorus	XXX	XXX	XXX	Report Annl Avg	XXX	XXX	1/year	Grab

Compliance Sampling Location: Outfall 001, after disinfection.

Other Comments: Monitoring frequency for pH, Dissolved Oxygen and TRC was changed to "1/day" in accordance with Table 6-3 in the "Technical Guidance for the Development and Specification of Effluent Limitations" and in accordance with the Department's SOP entitled "New and Reissuance Sewage Individual NPDES Permit Applications."

Outfall Location - eMap with Aerial Imagery



Dry Reach - Drainage Area Location – StreamStats with Aerial Imagery

StreamStats Report

Region ID:	PA
Workspace ID:	PA20240711130351024000
Clicked Point (Latitude, Longitude):	41.32301, -79.19943
Time:	2024-07-11 09:04:13 -0400

Collapse All

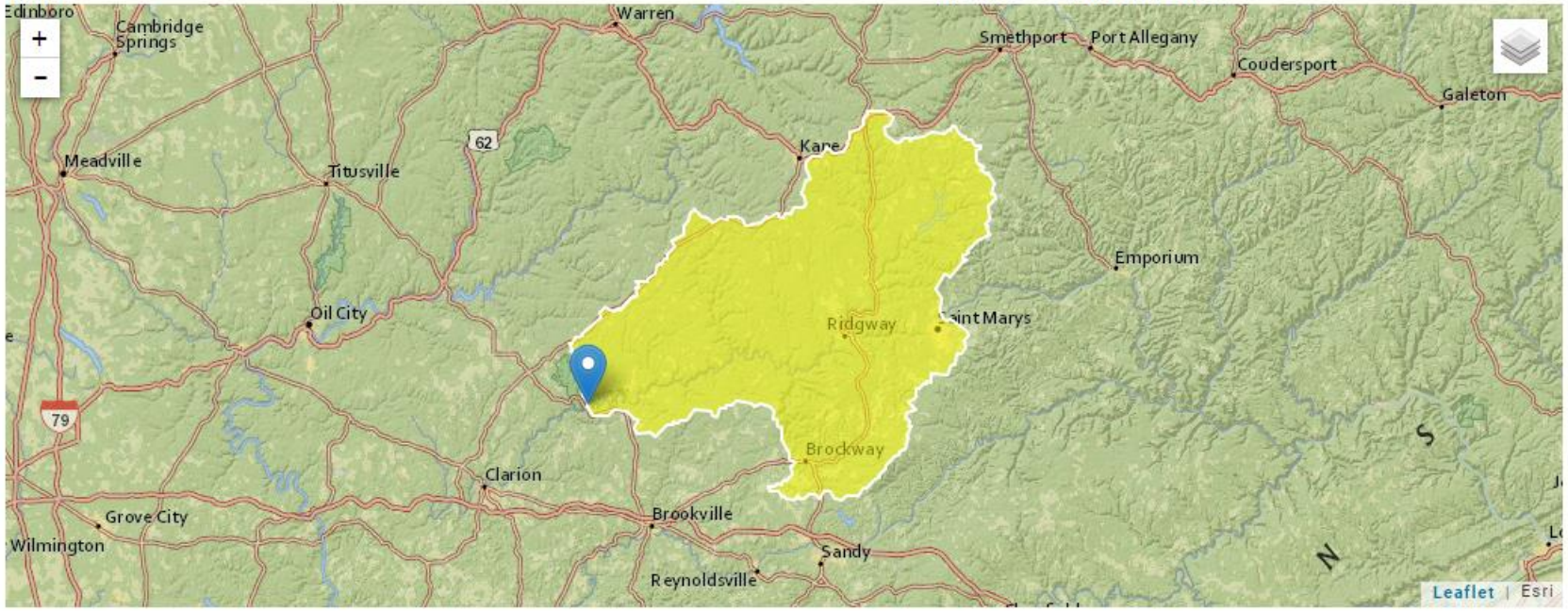
Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	0.000463	square miles

Perennial Reach - Drainage Area Location – StreamStats with Aerial Imagery

StreamStats Report

Region ID:	PA
Workspace ID:	PA20240710170237642000
Clicked Point (Latitude, Longitude):	41.32489, -79.19666
Time:	2024-07-10 13:03:01 -0400



Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	793	square miles

Attachment 1

Dry Reach Modeling

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
17B	49224	CLARION RIVER

RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Effl. Limit 30-day Ave. (mg/L)	Effl. Limit Maximum (mg/L)	Effl. Limit Minimum (mg/L)
0.170	Gateway Lodge R	PA0222887	0.006	CBOD5	10		
				NH3-N	10	20	
				Dissolved Oxygen			4

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
17B	49224	CLARION RIVER

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
0.170	0.006	20.000	7.400
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
0.035	1.001	0.035	0.263
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
10.00	1.500	10.00	0.700
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
4.000	8.833	Owens	2
Reach Travel Time (days)			
0.039			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.004	9.94	9.97	3.97
0.008	9.88	9.95	3.93
0.012	9.82	9.92	3.90
0.016	9.77	9.89	3.88
0.020	9.71	9.86	3.85
0.024	9.65	9.84	3.82
0.028	9.60	9.81	3.80
0.031	9.54	9.78	3.78
0.035	9.48	9.76	3.76
0.039	9.43	9.73	3.74

WQM 7.0 Modeling Specifications

Parameters	D.O.	Use Inputted Q1-10 and Q30-10 Flows	☑
WLA Method	EMPR	Use Inputted W/D Ratio	☐
Q1-10/Q7-10 Ratio	0.64	Use Inputted Reach Travel Times	☐
Q30-10/Q7-10 Ratio	1.36	Temperature Adjust Kr	☑
D.O. Saturation	90.00%	Use Balanced Technology	☑
D.O. Goal	2		

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
17B	49224	CLARION RIVER	**0.170**	1345.00	0.00	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.001	0.00	0.00	0.000	0.000	0.0	0.00	0.00	20.00	7.40	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
Gateway Lodge R	PA0222887	0.0060	0.0000	0.0000	0.000	20.00	7.40

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	10.00	0.00	0.00	1.50
Dissolved Oxygen	4.00	8.24	0.00	0.00
NH3-N	10.00	0.00	0.00	0.70

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
17B	49224	CLARION RIVER	**0.001**	1157.00	0.00	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.001	0.00	0.00	0.000	0.000	0.0	0.00	0.00	20.00	7.40	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
		0.0000	0.0000	0.0000	0.000	25.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	3.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
17B	49224	CLARION RIVER

Dissolved Oxygen Allocations

RMI	Discharge Name	CBOD5		NH3-N		Dissolved Oxygen		Critical Reach	Percent Reduction
		Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)		
0.17	Gateway Lodge R	10	10	10	10	4	4	0	0

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
17B	49224	CLARION RIVER

RMI	Stream Flow (cfs)	PWS With (cfs)	Net Stream Flow (cfs)	Disc Analysis Flow (cfs)	Reach Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Reach Trav Time (days)	Analysis Temp (°C)	Analysis pH
Q7-10 Flow												
0.170	0.00	0.00	0.00	.0093	0.21069	1.001	.04	.04	0.26	0.039	20.00	7.40
Q1-10 Flow												
0.170	0.00	0.00	0.00	.0093	0.21069	NA	NA	NA	0.00	0.000	0.00	0.00
Q30-10 Flow												
0.170	0.00	0.00	0.00	.0093	0.21069	NA	NA	NA	0.00	0.000	0.00	0.00

Attachment 2

Perennial Reach Modeling

For CBOD5 and DO, the resulting limits are the same as the inputs from the Dry Stream model therefore secondary limits are sufficient.

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
17B	49224	CLARION RIVER

RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Effl. Limit 30-day Ave. (mg/L)	Effl. Limit Maximum (mg/L)	Effl. Limit Minimum (mg/L)
50.660	Gateway Lodge R	PA0222887	0.006	CBOD5	9.43		
				NH3-N	9.73	19.46	
				Dissolved Oxygen			3.74

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
17B	49224	CLARION RIVER

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
50.660	0.006	20.000	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
209.648	1.123	186.631	0.711
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
2.00	0.000	0.10	0.700
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
8.243	3.393	Tsivoglou	6
Reach Travel Time (days)			
0.255			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.025	2.00	0.10	8.24
0.051	2.00	0.10	8.24
0.076	2.00	0.10	8.24
0.102	2.00	0.10	8.24
0.127	2.00	0.10	8.24
0.153	2.00	0.10	8.24
0.178	2.00	0.10	8.24
0.204	2.00	0.10	8.24
0.229	2.00	0.10	8.24
0.255	2.00	0.10	8.24

WQM 7.0 Modeling Specifications

Parameters	Both	Use Inputted Q1-10 and Q30-10 Flows	☑
WLA Method	EMPR	Use Inputted W/D Ratio	☐
Q1-10/Q7-10 Ratio	0.64	Use Inputted Reach Travel Times	☐
Q30-10/Q7-10 Ratio	1.36	Temperature Adjust Kr	☑
D.O. Saturation	90.00%	Use Balanced Technology	☑
D.O. Goal	6		

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
17B	49224	CLARION RIVER	**50.660**	1157.00	793.00	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.211	0.00	0.00	0.000	0.000	0.0	0.00	0.00	20.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
Gateway Lodge R	PA0222887	0.0060	0.0000	0.0000	0.000	20.00	7.40

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	9.43	2.00	0.00	1.50
Dissolved Oxygen	3.74	8.24	0.00	0.00
NH3-N	9.73	0.10	0.00	0.70

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
17B	49224	CLARION RIVER	**47.700**	1141.00	808.00	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.211	0.00	0.00	0.000	0.000	0.0	0.00	0.00	20.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
		0.0000	0.0000	0.0000	0.000	25.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	3.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
17B	49224	CLARION RIVER

NH3-N Acute Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
50.660	Gateway Lodge R	16.76	19.46	16.76	19.46	0	0

NH3-N Chronic Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
50.660	Gateway Lodge R	1.89	9.73	1.89	9.73	0	0

Dissolved Oxygen Allocations

RMI	Discharge Name	CBOD5		NH3-N		Dissolved Oxygen		Critical Reach	Percent Reduction
		Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)		
50.66	Gateway Lodge R	9.43	9.43	9.73	9.73	3.74	3.74	0	0

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
17B	49224	CLARION RIVER

RMI	Stream Flow (cfs)	PWS With (cfs)	Net Stream Flow (cfs)	Disc Analysis Flow (cfs)	Reach Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Reach Trav Time (days)	Analysis Temp (°C)	Analysis pH
Q7-10 Flow												
50.660	167.32	0.00	167.32	.0093	0.00102	1.123	209.65	186.63	0.71	0.255	20.00	7.00
Q1-10 Flow												
50.660	107.09	0.00	107.09	.0093	0.00102	NA	NA	NA	0.55	0.327	20.00	7.00
Q30-10 Flow												
50.660	227.56	0.00	227.56	.0093	0.00102	NA	NA	NA	0.84	0.214	20.00	7.00

Attachment 3

TRC EVALUATION

Input appropriate values in A3:A9 and D3:D9

167.3	= Q stream (cfs)	0.5	= CV Daily
0.006	= Q discharge (MGD)	0.5	= CV Hourly
30	= no. samples	1	= AFC_Partial Mix Factor
0.3	= Chlorine Demand of Stream	1	= CFC_Partial Mix Factor
0	= Chlorine Demand of Discharge	15	= AFC_Criteria Compliance Time (min)
0.5	= BAT/BPJ Value	720	= CFC_Criteria Compliance Time (min)
0	= % Factor of Safety (FOS)	0	=Decay Coefficient (K)

Source	Reference	AFC Calculations	Reference	CFC Calculations
TRC	1.3.2.iii	WLA afc = 5749.717	1.3.2.iii	WLA cfc = 5605.516
PENTOXSD TRG	5.1a	LTAMULT afc = 0.373	5.1c	LTAMULT cfc = 0.581
PENTOXSD TRG	5.1b	LTA_afc= 2142.482	5.1d	LTA_cfc = 3258.784

Source		Effluent Limit Calculations	
PENTOXSD TRG	5.1f	AML MULT = 1.231	
PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) = 0.500	BAT/BPJ
		INST MAX LIMIT (mg/l) = 1.635	

WLA afc	**(.019/e(-k*AFC_tc)) + [(AFC_Yc*Qs*.019/Qd*e(-k*AFC_tc))...** **...+ Xd + (AFC_Yc*Qs*Xs/Qd)]*(1-FOS/100)**
LTAMULT afc	EXP((0.5*LN(cvh^2+1))-2.326*LN(cvh^2+1)^0.5)
LTA_afc	wla_afc*LTAMULT_afc
WLA_cfc	**(.011/e(-k*CFC_tc) + [(CFC_Yc*Qs*.011/Qd*e(-k*CFC_tc))...** **...+ Xd + (CFC_Yc*Qs*Xs/Qd)]*(1-FOS/100)**
LTAMULT_cfc	EXP((0.5*LN(cvd^2/no_samples+1))-2.326*LN(cvd^2/no_samples+1)^0.5)
LTA_cfc	wla_cfc*LTAMULT_cfc
AML MULT	EXP(2.326*LN((cvd^2/no_samples+1)^0.5)-0.5*LN(cvd^2/no_samples+1))
AVG MON LIMIT	MIN(BAT_BPJ,MIN(LTA_afc,LTA_cfc)*AML_MULT)
INST MAX LIMIT	**1.5*((av_mon_limit/AML_MULT)/LTAMULT_afc)**